## REMARKS/ARGUMENTS

Claim 1 has been amended. Claims 1-8 are pending.

The Examiner rejected claims 1-2 and 4-8 under 35 U.S.C. 103 (a) as being unpatentable over JP-A-2002-98186 in view of McClean.

The present invention relates to a vibration damper, and has been developed in an effort to solve the problem inherent in the primary reference JP-A-2002-98186, as discussed in paragraphs [0004]-[0006] of the specification.

Claim 1 has been amended to incorporate the following features (i) and (ii) in order to clearly define the present invention as distinguished from the cited references, JP-A-2002-98186 and McClean or Kuwayama'810:

(i) the connecting member, the covering member and the engaging projections are directly formed onto the metallic mass member through vulcanization of a rubber material for forming thereof; and

(ii) the plurality of engaging projections are held in close contact and fixed engagement with the plurality of engaging recesses by utilizing shrinkage of the covering member in a radially inward direction thereof.

These newly cited features are important for eliminating the conventional problem of creation of gaps or cracks between the slit 2 and the part 3a of the elastic body as shown in Fig. 12B, due to shrinkage of the part 3a of the rubber elastic body, which will be described later in detail. A basis for the proposed amendment to claim 1 is found on pages 6-7 and in paragraph [0040] of the specification.

As shown in Figs. 12A and 12B of the application, in the conventional dynamic damper as disclosed in JP-A-2002-98186, the cylindrical mass member 1 is formed with a plurality of slits 2 extending through its wall thickness at both axial ends thereof, whereby these slits 2 are filled with the rubber elastic body so that the inner and outer circumferential portions of the rubber covering layer 3 are tightly connected together by means of a slit-filling part 3a of the

rubber elastic body, making it possible to ensure a tight bonding between the rubber elastic body and the cylindrical mass without providing an adhesive therebetween.

However, the conventional dynamic damper has suffered from undesirable creation of cracks or gaps at an interface between the slit 2 and the slit-filling part 3a, resulting in deterioration of damping performance of the dynamic damper.

Extensive studies conducted by the inventors on the conventional dynamic damper reveals that the creation of the cracks is made because an amount of displacement of the rubber covering layer 3 is insufficient to compensate the amount of shrinkage of the part 3a of the rubber elastic body in the direction indicated by arrows in Fig. 12B, thus easily creating cracks or gaps between the slit 2 and the part 3a (see page 3 lines 4-20 of the specification).

In view of the above finding, the present invention creates a unique structure of the dynamic damper where the shrinkage of the rubber elastic body is instead utilized to enhance the bonding strength of the rubber elastic body against the cylindrical mass member, and to eliminate the conventional problem of creation of the cracks.

According to the present invention as defined in claim 1, as amended, the cylindrical metallic mass member 11 includes a plurality of recesses 12 formed at opposite axial end portions thereof and open in an outer circumferential portion thereof, and a plurality of engaging projections integrally formed with the covering member 19, and projected into and filling approximately completely the plurality of recesses. Since the engaging projections as well as the connecting member and the covering member are directly formed onto the metallic mass member through vulcanization of a rubber material for forming thereof, the engaging projections are projected into and held in tight engagement with the engaging recess, owing to the shrinkage of the covering member in a radially inward direction thereof. Thus, sufficient bonding strength between the rubber elastic body and the covering member can be achieved by utilizing the shrinkage of the rubber elastic body, especially the shrinkage of the covering member 19 in the radially inward direction. Moreover, since the engaging recesses are not open in the inner circumferential surface of the metallic mass member, the engaging projections filling the engaging recesses are less affected by an inner circumferential portion of the covering member, thereby preventing the creation of the gaps.

It should be noted that the present dynamic damper provides a bonding strength between the cylindrical mass member and the covering member by means of a unique engagement of the

recesses and engaging projections whose tightness is enhanced by the shrinkage of the covering member, which is not suggested by any of the cited references.

On the other hand, the secondary reference, McLean discloses a torsional damper whose basic structure is different from that of the present invention. Namely, the disclosed torsional damper has construction where an inertia mass 12 is attached to a rotor disk 7 as a vibrative member via a rubber ring 15, in such a state that the rubber ring 15 is fixedly secured to the rotor disk 7 and pressing against a substantially radial width of axially inward facing surface area within a chamber of the inertia mass under preload compression between the surface area and the rotor disk 7 (see column 2, lines 32-48 of McLean). Contrary to the present invention, in the torsional damper of McLean, the separately formed rubber ring 15 is surrounded by the inertia mass 12. Due to this difference in construction, the secondary reference provides no suggestion for one of ordinary skilled in the art to modify the primary reference to solve the problem inherent in the dynamic damper where all surface of the mass member is surrounded by the rubber elastic body that is integrally formed thereon through vulcanization of a rubber material and undergoes shrinkage.

In addition, McLean teaches in column 4, lines 61-68, that the ribs 27 will be received closely but in freely slidably relation within the grooves 25. This is contrary to the feature of the present invention where the engaging projections are held in close contact and fixedly engaged with the plurality of engaging recess by utilizing shrinkage of the covering member in the radially inward direction.

As stated above, since the basic construction is different from the primary reference and the secondary reference, it is impossible or unreasonable to combine these references together. Moreover, both references neither disclose nor anticipate the tight or fixed engagement between the recesses of the metallic mass member and the projections of the covering layer by effectively utilizing shrinkage of the rubber elastic body.

For at least these reasons, claim 1, as amended, is not made obvious by the cited references.

The Examiner rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Japanese'186 in view of McClean, and further in view of Kuwayama '810.

Claims 2-8 are ultimately dependent on independent claim 1. In addition, these claims add additional features, which when taken together with the limitations of the independent claims are not anticipated or made obvious by the cited reference. For at least these reasons, claims 2-8 are not anticipated or made obvious by the cited reference.

If any fees are due in connection with the filing this Response, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0388 (Order No. KASAP039).

Respectfully submitted,
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